

Claims.

- 1.(previously presented) A ceramic filter for molten metal filtration comprising a ceramic powder and fibers bonded by a network of graphitizable carbon.
- 2-3.(canceled)
- 4.( previously presented) A filter for molten metal filtration comprising fibers bonded by a network of graphitizable carbon.
- 5-21. (canceled)
- 22.(currently amended) The filter of claim 1, wherein the ceramic powder is selected from a group consisting of zirconia, silica, alumina, brown fused alumina, magnesia, clay, talcum, mica, silicon[[,]] carbide, silicon-nitride, graphite and mixtures thereof.
- 23.( previously presented) The filter of claim 1, wherein the filter comprises 5-15 wt% graphitizable carbon.
- 24.( currently amended) The filter of claim 1, wherein the fibers are selected from a group consisting of ceramic fibers, glass fibers, organic fibers, carbon fibers, ~~metal~~ metal fibers and mixtures thereof.
- 25.(previously presented) The filter of claim 1, wherein the filter comprises 1-10 wt% fibers.
- 26.( currently amended) The filter of claim 4, wherein the fibers are selected from a group consisting of ceramic fibers, glass fibers, organic fibers, carbon fibers, ~~metal~~ metal fibers and mixtures thereof.

- 27.(previously presented) The filter of claim 26, wherein the ceramic fibers are selected from a group consisting alumina fibers, silica fibers, aluminosilicate fibers and mixtures thereof.
- 28.(previously presented) The filter of claim 26, wherein the organic fibers are selected from a group consisting of polyester fibers, polyacrylnitrile fibers, polyethylene fibers, polyamide fibers, viscose fibers, aramid fibers and mixtures thereof.
- 29.(previously presented) The filter of claim 4, wherein the filter comprises 1-10 wt% fibers.
- 30.(previously presented) The filter of claim 4, wherein the fibers have a length from 0.1-5 mm.
- 31.(withdrawn) A method to produce filters for molten metal filtration comprising fibers and a bonded network of graphitized carbon, comprising:
- a) impregnating a foam comprising a thermoplastic material with a slurry comprising fibers and a graphitizable carbon-bonding precursor;
  - b) drying the impregnated foam;
  - c) firing the impregnated foam in a non-oxidizing atmosphere at a temperature from 500-1000°C, whereby the carbon-bonding precursor is converted at least partially to a bonded network of graphitized carbon.
- 32.(withdrawn) The method of claim 31, wherein the foam is impregnated by a plurality of coatings of the slurry.
- 33.(withdrawn) The method of claim 31, wherein the fibers include organic fiber and the organic fiber is pyrolyzed during firing.

- 34.(withdrawn) The method of claim 31, wherein firing is performed at a temperature from 600-700°C.
- 35.(withdrawn) The method of claim 31, wherein the non-oxidizing atmosphere comprises a reducing atmosphere.
- 36.(withdrawn) The method of claim 31, wherein the slurry includes a ceramic powder.
- 37.(withdrawn) The method of claim 31, wherein the foam comprises polyurethane.
- 38.(withdrawn) The method of claim 31, wherein the slurry includes fibers, carbon-bonding precursor, water, organic binder, and rheology additives.
- 39.(withdrawn) A method to produce filters for molten metal filtration comprising fibers and a bonded network of graphitized carbon, comprising:
- a) pressing a semi-damp mixture comprising fibers and a graphitizable carbon-bonding precursor to obtain a perforated article;
  - b) firing the perforated article in a non-oxidizing atmosphere at a temperature from 500-1000°C, whereby the carbon-bonding precursor is converted at least partially to a bonded network of graphitized carbon.
- 40.(withdrawn) The method of claim 39, wherein the slurry includes ceramic powder.
- 41.(withdrawn) The method of claim 39, wherein the graphitizable carbon-bonded precursor comprises high melting pitch.
- 42.(withdrawn) The method of claim 39, wherein the semi-damp mixture comprises:
- a) 0.1-20 parts fibers;
  - b) 2-15 parts graphitizable carbon-bonding precursor;
  - c) up to 95 parts ceramic powder;
  - d) up to 80 parts anti-oxidation material;

- e) up to 90 parts graphite;
  - f) up to 10 parts organic binder; and
  - g) up to 4 parts dispersion agent.
- 43.(withdrawn) The method of claim 42, wherein the anti-oxidation material is selected from a group consisting of powders of steel, iron, bronze, silicon, magnesium, aluminum, boron, zirconium boride, calcium boride, titanium boride and mixtures thereof.
- 44.(withdrawn) The method of claim 42, wherein the anti-oxidation material comprises glass frit with 20-30 wt% boric oxide.
- 45.(withdrawn) The method of claim 42, wherein the organic binder is selected from a group consisting of PVA, starch, gums, sugar and mixtures thereof.
- 46.(withdrawn) The method of claim 42, wherein the dispersion agent comprises ligninsulphonate.
- 47.(withdrawn) The method of claim 42, wherein the semi-damp mixture includes up to 2 parts plasticizer.
- 48.(withdrawn) The method of claim 42, wherein the semi-damp mixture includes up to 1 part anti-foaming agent.
- 49.(withdrawn) The method of claim 39, wherein the non-oxidizing atmosphere comprises a reducing atmosphere.
- 50.(withdrawn) The method of claim 39, wherein firing is performed at a temperature from 600-700°C.